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ATP-binding cassette (ABC) transporters: structures and roles in bacterial pathogenesis

Key Words: ABC Transporters; Bacterial Pathogenesis; Virulence

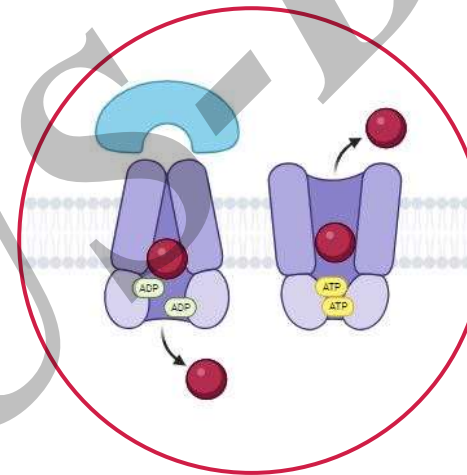
RESEARCH SUMMARY

- **This review focused on the roles of bacterial ABC transporters in bacterial growth, pathogenesis, and virulence throughout the course of infection.**
- **The information on conserved domains and different classes of transporters is given to enhance accessibility for new readers.**
- **The roles of ABC transporters during infection are succinctly summarized across several aspects:**
 - Biofilm Formation**
 - Adherence and Invasion of Host Cells**
 - Antimicrobial Activities and Drug Resistance**

INNOVATION POINTS

- **Introduction** to the conserved architecture of ABC transporters and the diverse roles they play in the establishment of infections caused by bacterial pathogens.
- **Summary** of the latest research on bacterial pathogen ABC transporters from facilitating nutrient uptake to influencing biofilm formation, adherence, invasion, and mediating drug resistance.
- **Emphasis** the interplay between bacterial ABC transporters and their hosts highlights their potential as novel targets for therapeutic interventions, introducing new approaches in combating bacterial diseases.

Bacterial ABC transporters:
Importers & Exporters



Roles in
bacterial
infections

- Biofilm formation
- Adherence and invasion
- Antibiotic resistance



INNOVATION POINTS

- The latest classification of ABC transporters has been summarized in Table 1.
- The protein complexes and conserved NBD protein folds of ABC transporters were visualized in Figure 1 using the experimentally determined structure PDB ID: 5B58
- The roles of ABC importers and exporters in bacterial adherence were summarized in Figure 2 to reveal their significance in the context of bacterial interactions with host cells.